

may be able to find a way out of the difficulty. It should also be recollected that, according to the Stricklandian Code, the twelfth edition of the 'Systema,' not the tenth, is to be taken as the starting-point of Binomial Nomenclature, and that "toutonyms" are not permitted. These are both obvious advantages, as is also the liberty to correct mistakes and bad grammar. If we take Latin for the language of science we are surely bound to follow its grammatical rules. On all these three important points, which were further elucidated in my address to the Zoological Society in 1896 (above referred to), Strickland's views may be tested by reference to his own writings. Moreover, the Stricklandian Code of 1842 has a long "PRIORITY" in point of date over the International Rules of 1905, and may well claim precedence on that account.

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VII.—*Solander as an Ornithologist.* By TOM IREDALE.

It has been suggested to me that a short note regarding Solander and his connection with ornithology might be of interest to the readers of 'The Ibis.'

To those few who, like myself, have had occasion to delve into the literature surrounding almost any member of the Procellariiformes, the name of Solander has long been familiar, but hitherto it has not been regarded with feelings of pleasure. The numerous manuscript names which confront the investigator in that Order had usually the enigmatic "Sol." attached, and most attempts to fathom the mystery surrounding this name have ended in failure. Those working at the British Museum (Natural History) were enabled to examine unfinished drawings and paintings on which appeared in pencil some of the names usually accredited to "Sol." In a carefully locked box, labelled "Solander MSS.," is contained a number of little books of manuscript slips of descriptions of zoological specimens in the handwriting of Solander. These were also accessible to the interested student, but upon reference to the solitary

book labelled "Aves" only a few slips relating to the Diomedeidæ were found. Consequently the determination of the drawings was a difficult matter, and it might have been a worthless pursuit were it not that Latham, in the 'General Synopsis of Birds,' described many Petrels from the collection and drawings of Sir Joseph Banks. Before proceeding further, I propose to outline the career of Dr. Solander, the details of which are drawn from the Journal of Sir Joseph Banks, edited by Sir J. D. Hooker in 1896, where there appears a biographical sketch of his life. I have to thank Mr. W. L. Selater for drawing my attention to this interesting book. When Mr. Mathews wrote his account of the southern Petrels in his 'Birds of Australia,' he was unaware of this book, as it is not included in the General Library of the British Museum (Natural History), but through inadvertence has been allotted to the Botanical Department, though the zoological items seem to much outnumber the botanical ones.

Daniel Carl Solander was born in Norrland, Sweden, on February 28, 1736, and studied at Upsala, where he took his degree of M.D. and became a pupil of Linné. I have always identified him with the "D. Solandri" mentioned in the introduction to the tenth Edition of Linné's 'Systema Naturæ,' where he is recorded as being a disciple of Linné, who had made a trip into "Lapp, Pitensem and Tornensem in 1753." If this be correct, Solander was only seventeen when he made this journey.

Linné advised him to go to England, and gave him an introduction to Ellis. Solander arrived in England in 1760, and though well recommended to the British Museum no permanency was offered him. Consequently, in 1762, Linné obtained the offer of a botanical professorship at St. Petersburg for him, but on the advice of his English friends this was declined and almost immediately afterwards he was appointed Assistant in the British Museum, where apparently he had been engaged in classifying and cataloguing since his arrival. In 1764 he was elected a Fellow of the Royal Society. It was not until 1767 that he met Banks, but a friendship was

at once formed that ended only with death. Banks was the younger man and probably was the more enthusiastic, but the exact connection between the two cannot now be ascertained. Anyhow Banks determined to accompany Captain Cook on his First Voyage, the main purpose of which was to observe the Transit of Venus from the new view-point in the Pacific, the Society Islands, and incidentally to look out for the theoretical Antarctic Continent. The result of Banks' meeting with Solander is thus told in a letter from Ellis to Linné:—"I must inform you that Jos. Banks has prevailed on your pupil Dr. Solander to accompany him in the ship . . . . to the new-discovered country in the South Sea . . . . I must observe to you that his places are secured to him, and he has promises from persons in power of much better preferment on his return. Everybody here parted from him with reluctance, for no man was ever more beloved, and in so great esteem with the public from his affable and polite behaviour." Cook's first voyage lasted from 1768 till 1771, and Solander and Banks arrived back safely, although the three artists whom they took with them all died on the voyage.

On their return Solander became Secretary and Librarian to Banks and also Under-Librarian at the British Museum. The "call of the Pacific" was, however, felt by Banks and Solander, and preparations were made by them to accompany Cook on his Second Voyage. On receipt of this intelligence, Linné wrote to Ellis a most prophetic lament, extracts from which are worth reproduction in this connection:—"I have just read . . . . that our friend Solander intends to revisit those new countries, . . . . This report has affected me so much as almost entirely to deprive me of sleep. . . . Whilst the whole botanical world, like myself, has been looking for the most transcendant benefits to our science . . . . all their matchless and truly astonishing collection . . . . is to be put aside untouched, to be thrust into some corner, to become perhaps the prey of insects and of destruction. . . . I am under great apprehension that, if the collection should remain untouched till Solander's return,

it might share the same lot as Forskal's Arabian specimens at Copenhagen . . . . Solander promised . . . . that he would visit me after his return. If he had brought some of his specimens with him, I could at once have told him what were new . . . . he might have been informed or satisfied upon many subjects, which after my death will not be so easily explained. . . . Do but consider, my friend, if these treasures are kept back, what may happen to them. They may be devoured by vermin of all kinds. The house where they are lodged may be burnt. Those destined to describe them may die. . . . I therefore once more beg, may I earnestly beseech you, to urge the publication of these new discoveries. I confess it to be my most ardent wish to see this done before I die." Linné's wish, however, was not gratified, as although Solander and Banks did not make the second voyage with Cook they went to Iceland instead. It may here be conceded that it was probably the irresponsibility of Banks overruling the prudence of Solander that completed the desolate tale. For though it is now known that some work was done, little had been effected when Solander was struck down by paralysis and passed away on the 16th of May, 1782.

How fearfully fulfilled was Linne's utterance "Those destined to describe them may die." The specimens "may be devoured by vermin of all kinds": this appears to have happened, as the majority of the forms are absolutely lost. "To be thrust into some corner" was literally the fate of nearly everything connected with the First Voyage.

After Solander's death, Banks does not seem to have taken any interest in the zoological specimens, but apparently allowed Latham to inspect the birds and bird-drawings. As a result, many were described by that great ornithologist, and these have been, in some cases, stumbling-blocks to the systematist, in that Latham did not transcribe the exact localities, and, moreover, did not differentiate the incomplete drawings nor indicate them as such. If Solander's notes were made available to Latham, he did not use them. The Banksian drawings and manuscript passed into the possession of the British Museum, but they were "thrust into some

corner." It appears to be an outstanding blot upon that Institution that all the work (scant enough) done in connection with these Banksian drawings and manuscript, with little exception, has been performed gratuitously by amateurs, the only two officials who have attempted any work, that I can trace, being Gray and Sharpe. Kuhl, Temminck, Natterer, Bonaparte, Gould, Salvin, Godman, and Mathews are the chief names associated with the attempts to elucidate the problems surrounding these drawings. Yet, according to the "History of the Collections, British Museum (Natural History)," Solander held the post of Keeper of that Institution.

Through this neglect, the correct appreciation of the Solander names was impossible to extra-London ornithologists, and almost all the errors apparent in Coues's 'Monograph of the Procellariidæ' in 1864-66 are due to this cause.

A study of the literature made it apparent that more manuscript had been available to the earlier students than could now be seen, as these ornithologists quoted names "*ex Sol. MS.*" which do not appear on the drawings. Salvin noted this in 1876, and, although it seemed certain that Gray had referred to such a manuscript as recently as 1871, Salvin had to conclude that it had been lost. Through the persistent enquiries by Mr. Mathews, it was, however, discovered that a batch of manuscript carefully put away and labelled as "*Copies of the Solander MSS.*" was not, in fact, copies, but constituted the carefully prepared foolscap matter cleanly made for press purposes. From an examination of this batch, we can deduce the procedure of Banks and Solander to have been somewhat as follows:—Banks appears to have been the collector of the majority: when the specimen was procured it was handed to the artist, who at once made a sketch of it, in some cases painting in the soft parts, in others writing in the colour on the drawing: the locality was also written on the drawing, often in Banks' handwriting; then Solander drew up a detailed description on a little slip of paper, and selected a name for the bird,



which was then written on the drawing in pencil, probably at the same time by Solander himself.

Whether the skin was preserved or not I cannot say, but I conclude not. No specimen can be traced, even in literature, which can honestly be said to have been procured on this First Voyage. After their arrival back, Solander certainly worked up the Petrels, making comparisons with the literature, and having the matter on the slips rewritten in clean form on foolscap sheets. It is this rewritten clean batch which Mr. Mathews has traced and which' accounts for the missing slips in Solander's book of "Aves" afore-mentioned. After the foolscap pages were prepared, the rough slips seem to have been destroyed. By means of these beautiful diagnoses which Mr. Mathews has reprinted in his 'Birds of Australia' any student of the Procellariiformes can work at Gmelin's species and also read, with reasonable clearness, the monographs of Kuhl, Gould, and Bonaparte. Previously this was quite an impossibility, and in publishing these copies Mr. Mathews has conferred the greatest benefit possible upon the extra-London worker, who can now decide as to the correct attachment of the hitherto enigmatic "Sol. MS." names. Regarding such matters, I always write from the view-point of one who has endeavoured to do lasting work when living at the Antipodes, deprived of much literature and served with scant material. Those who have the wealth of literature and access to the vast collections of the British Museum are apt to overlook such matters, and do not consider how grateful Antipodean workers are for "the scraps that fall from the table." I can also speak with feeling, as some years ago I was confronted with the problem of what was "*Procellaria alba*" Gmelin, which appeared in the synonymy of the Kermadec Petrel. After much trouble and research I arrived at the conclusion that the drawing which served for the basis of that name, and upon which appeared pencilled "*P. sandaliata*," had been prepared from a specimen of *Cestrelata arminjoniana* Giglioli and Salvadori. I then found that Salvin had arrived at the same result, whereas Mr. Mathews' reproduction of the beautiful diagnosis of *Procellaria sandaliata* Solander shews that we were both

wrong, and that the bird so named was undoubtedly that afterwards described as *Procellaria incerta* Schlegel, a recognition unguessed at by every previous worker.

I would point out that it is quite possible that other problems regarding obscure birds may be solved by careful study of this newly found manuscript. Mr. Mathews only dealt with that portion covering the Petrels of the Southern Hemisphere, and not with the rest of what had been re-discovered.

A few suggestions and ideas which study of the manuscript compelled, seem to be confirmed by extracts from Banks' Journal. It is much to be regretted that Solander does not seem to have kept a diary, but reference to Banks' Journal appears to shew that he worked very closely with Banks, and that the latter used "we" as including Solander and himself, and also that Banks' "I" just as usually included Solander.

In the first place, I was struck by the fact that no land-birds were described, save such as flew on board the ship. The conclusion is that, primarily, Banks and Solander were botanists, but, as at sea no studies in that science were possible, full attention was given to zoological items. This is borne out by the extract from Banks' Journal, p. 57: "In the first bay we were in I might have shot any quantity of ducks or geese, but would not spare the time from gathering plants . . . . Of plants there were many species, but to speak of them botanically, probably no botanist has ever enjoyed more pleasure in the contemplation of his favourite pursuit than did Dr. Solander and I among these plants."

Mr. Mathews decided that "apparently none of the specimens met with on the first voyage came into the possession of the British Museum." I have stated I could trace none, and I do not think any were preserved. I believe that the descriptions and figures were considered sufficient and that after these were made the birds were *consigned to the pot*. I would again quote Banks' Journal in this connection (p. 63):—"1st Febr., 1769. Killed *Diomedea antarctica*, *Procellaria lugens* and *turtur*. The

first, or Black-billed Albatross, is much like the common one, but differs in being scarce half as large, and having a bill entirely black. *Procellaria lugens*, the Southern Shearwater, differs from the common kind in being smaller and of darker colour on the back, but is easily distinguished by the flight, which is heavy, and by two fasciæ or streaks of white, which are very conspicuous when it flies, under the wings. *Procellaria turtur*. Mother Carey's Dove, is of the Petrel kind, about the size of a Barbary Dove, of a light silvery blue upon the back, which shines beautifully as the bird flies. Its flight is very swift and it remains generally near the surface of the water. More or less of these birds have been seen very often since we left the latitude of Falkland's Island, where in a gale of wind we saw immense quantities of them.

"3rd. Shot *Diomedea exulans*, an Albatross or Alcatrace, much larger than those seen to the northward of the Straits of Le Maire, and often quite white on the back between the wings, though certainly the same species: *D. antarctica*, Lesser Black-billed Albatross: *D. profuga*, Lesser Albatross, with a parti-coloured bill, differing from the last in few things except the bill, the sides of which were yellow with black between them.

"5th. I was well enough to eat part of the Albatrosses shot on the 3rd: they were so good that everybody commended and ate heartily of them, although there was fresh pork upon the table. To dress them, they are skinned overnight, and the carcasses soaked in salt water until morning, then parboiled, and the water being thrown away stewed well with very little water, and when sufficiently tender served up with savoury sauce."

The birds mentioned in the preceding notes are included in the drawings and constituted some of the puzzles, especially *P. lugens* and *P. turtur*. These names have oftentimes been quoted from the drawings as of "Banks," but comparison of the above notes and the Solander diagnoses prove that they should be allotted to the latter. Banks' language does not bespeak the ornithologist, whereas Solander's descriptions are monuments of exactitude and



have never been excelled, though probably Solander himself would not have claimed to be an ornithologist.

Again quoting from the same place (p. 64):—"15th. Went in the boat and killed *Procellaria velox*, *Nectris munda* and *fuliginosa*, which two last are a new genus between *Procellaria* and *Diomedea*: this we reckon a great acquisition to our bird collection."

It should be observed that here is mention of a "bird collection," but I still think that no collection was preserved and brought home, but that the drawings and descriptions represented the forms collected. It does not seem that skins were prepared at that time, and the few birds brought home by Forster on the Second Voyage were dried and mummified, not skinned.

The introduction of the genus *Nectris* (= *Puffinus*) also suggests that though Solander was such a keen and accurate observer when dealing with the southern Petrels, he had not been a close student of ornithology previously. Solander had collected specimens of the northern *Puffinus* at the beginning of the voyage and had carefully prepared descriptions and differentiated the species, yet did not recognise that they were congeneric with his southern *Nectris*, but included them in *Procellaria*. Yet when he procured *Puffinus carneipes* he placed it in *Nectris*, but added that it was somewhat intermediate between *Nectris* and *Procellaria*. This comment is delightfully accurate, and proves the exceeding care with which he worked at these birds.

The rediscovery of the manuscript, which had been "thrust into some corner" for almost 140 years, has now removed from the name of Solander that unpleasant flavour which always surrounds the maker of numerous perplexing manuscript names. We can now believe that the non-publication of these names was due to Solander's premature death, and that had he lived longer, his work would have been published under his own supervision. In any case, Mr. Mathews' publication of these diagnoses has placed the Solander names in such a position that they can now be fairly dealt with by every student of the *Procellariiformes* upon their own basis.